

REGIONAL INNOVATION GRANT
Montana Department of Labor & Industry

Industry Cluster—Technology

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Montana Regional Innovation Grant
White Paper

Industry Cluster: Technology

For the purpose of this project, the following definition will be applied to this industry cluster. **Technology: *Businesses relating to the research, development and/or distribution of technologically based goods and services. This sector contains businesses revolving around the manufacturing of electronics, creation of software, computers or products and services relating to information technology.***

In relation to this, the Telecom business is a huge and specialized portion of this industry. We have separated out Telecom for this report, and a separate white paper is being produced on that portion of the cluster.

Technology is a growing, vital and multi-faceted industry in Western Montana, encompassing a broad spectrum of business entities. Specific Western Montana industry within this cluster includes website development, software, coding and programming development, a wide variety of electronic manufacturing and support, product development, security systems, digital gaming, alternative energy development and technical services, computers, computer support and computer hardware, Internet and Telecom services, information technology (data mining), and data and media storage and recovery. In a somewhat different venue, other technology services include the hospitals of the region and higher education. These centers are continually utilizing new applications of software, computer services, data base management, internet, telecom and more. The high-tech needs of these facilities require daily interfacing with technology providers throughout the region.

Organizations in this cluster are located in throughout Western Montana, although they are concentrated in Missoula, Hamilton, Kalispell, and Whitefish. There is a technology industry presence in even the rural areas of this region. Technology businesses vary greatly in size in this region, from the sole proprietorship to the large corporation. Following is a sample list of Technology businesses through Western Montana, organized by county. In no way should this be considered a complete list, but rather a select representation of the greater business community of this industry cluster. Moving from north to south:

Lincoln County:

CMH Software; software development and support

Flathead County:

Creston Tech; web design

MC Squared Design; 3D computer generated models utilized for product design, inventions, prototype products, tooling and production design

SnowDog; web design and applications

Semitool; production of precision semiconductor manufacturing equipment
RadioActive; Computer service and upgrades, network installation and security, wireless networking installation and service, software, data backup solutions and recovery
Nomad; specialty integrated interoperable technological mobile platforms (vehicles).
Quality mobile command facility design and development
Merlin Data Publishing Corp; data and search and retrieval software and tools, serving needs for investigative professionals
Avail Media; linear IPTV (internet protocol television) and Video On Demand (VOD) solutions, digital media
American Web; website design and website hosting
Zaneray Group; e-commerce solutions, design and information systems, custom software development
Sonju Industrial; component manufacturing for aerospace, defense, semiconductor, medical and commercial sectors
Byte Savvy; data protection and recovery, web design, video conferencing, computer problem resolution, training center
Torrent Technologies; insurance policy processing and claims administration system solutions and support
Corporate Technology Group; network and communication systems, internet applications, software and custom website applications
Superior Satellite Engineers; satellite access solutions, feed systems and antennas
Bancard; electronic banking and credit card solutions, ATM equipment and support
NXGen; payment processing services

Lake County:

Bigfork Web; website development, custom software development, database development, e-commerce solutions
Water Street; software design and support for the insurance industry
Paul Spade Computers; website design and development, programming and databases, e-commerce, hosting, web traffic analysis
Jore; design, manufacture and marketing of innovative power tool accessories
S&K Technologies; interactive electronic technical manuals, systems management, integration, installation and training, logistical support, web site design, development, maintenance and operations, web application development, internet management, software development, engineering, telecommunications, research and development, acquisition support, program management
S&K Global Solutions; Information Technology, technical writing, project management, telecommunications, engineering
S&K Aerospace; robotics research and development, software development, environmental project management, project waste management, project management, supply chain management, IT services
S&K Electronics; manufacturer of cable assemblies, wiring harnesses, electronic and electro-mechanical products for industry and government
DRS Technical Services; integrated products, services and support for defense technology. , including thermal imaging devices, combat display workstations, electronic sensor systems, power systems, and more.

Pure Altar Productions; website design

Websites in a Flash; website design

Dynamic Solutions; product development, technology applications, testing and implementation

High Tech Industrial; software development; mechanical design; manufacturing focused solutions; CNC machining; engineering and consulting services

Black Mountain Software; Software Development and support

Click Here Designs; website design

Sanders County:

Beaver Creek IT Consultants; website design, development and management, computer technical assistance, training, software, hardware, DSL installation and supports. Focus on cottage industries and ecommerce.

Computer Logic; customer personal computers and servers, networking and network connections

Missoula County:

Pyron Technologies; website development, IT solutions, technology management

Big Sky Commerce; payment processing solutions

Aquila Vision; Remote sensing, geographic information systems (GIS), communication technology, public safety solutions; mapping solutions; hyperspectral imagery

GCS; Geospatial information technology, solutions and networks (commerce, surveillance, communication, decision support, mapping, immersive 360 video, security)

Modwest; web hosting & management support, data center, software development, computerized efficiencies

Direct TV; digital television services

Cynical and Jaded Software; software and engineering system development and implementation, high tech marketing, market analysis, business planning & negotiation

Logistic Systems Inc.; public safety solutions, software development targeted for public safety agencies, data management solutions, integrated geographic information systems (GIS)

CTA Architects Engineers; Green Building, sustainable building practices, energy conservation and alternative energy design solutions, and our on-going training in sustainable design practices with a commitment to protecting the environment.

GT Solar; solar technology, manufacturing and photovoltaic equipment solutions. This includes multicrystalline growth technology, Directional Solidification System furnaces (producing silicon ingots) and reactors and hydrogenation units for closed-loop, environmentally friendly polysilicon systems.

Ravalli County:

GlaxoSmithKline; pharmaceutical development, research and production (biotechnology)

Rocky Mountain Laboratories; Biomedical research, pharmaceutical analysis, endocrinology, forensic testing, toxicology testing

Hamilton Computer Service; Custom-built computers, service and networks

Top-Down Computer Consultants; Computer System Designers and Consultants
Bitterroot Mobile Computing; Compuguy; Computer Service and Repair
Cybernet 1 Inc.; Internet Access
Quantix Inc; Software design and ticket sales

Schools and Research:

Intermountain Fire Sciences Lab
U of M College of Technology
Missoula Adult Education
U of M Computer Science
Flathead Valley Community College
Salish Kootenai College

The over-all condition of the technology industry appears to be fairly healthy and vibrant, particularly for diversified companies. When business has expanded to include multiple products or services, as well as a diverse market (national, global), indications are that there is more stability in the market base. A few of these businesses have recently experienced reduction in workforce. However, analysis would indicate that these businesses have a more focused and limited product line than others.

Web development and software development businesses by nature continually are working to build new solutions, new approaches and reach new markets. By that definition alone, they tend to perpetually re-create themselves. This in itself helps to fuel their economic growth. There are several web site development companies and software development companies in this area, and they appear to be doing fairly well. These companies tend to be relatively small, with often only one or two people employed. Software development ventures may hold more potential for company growth.

Business representatives from within this industry cluster report that the field is constantly evolving and extremely competitive. They relate that there will always be growth within this business segment because the goal of technology is to reduce costs, simplify tasks and most importantly, allow people to live where they want to live while still successfully conducting business. Networking out of the area for business is a constant theme for those specific entities which appear to be experiencing the most growth. There is good connectivity overall, and this is a very attractive place to run a technology related company due to the quality of life for employees. At the same time, compared to urban areas, there is a small population base here, and that may limit growth to a certain degree for those companies that utilize a large workforce.

Driving capital is the other factor which helps to determine growth in this industry. The businesses that were interviewed reported they found a short supply of investment and development capital available for businesses in Montana. Angel Fund and Montana Board of Investments (MBOI) have helped, but more is needed. There was concern that the Big Sky Trust Fund might be cut during this legislative session.

Web business growth is unlimited. Marketing and merchandising has become easier and online transactions are now more secure. A good deal of infrastructure is already in place, as fiber trunk lines have been laid and there is wide access to broadband Internet connections. As cost of hardware decreases and office equipment and networking protocols improve, businesses envision potentially extending local networks via the internet. Additionally, they anticipate that the internet may eventually be able to transfer data as fast as a local network, depending on the technology to reduce the size of data and increase bandwidth. The entrepreneur could benefit from this technology advancement, and it could help grow additional technology businesses in this region.

For small businesses, the use of technology in a community leads to expansion of use of technology. As technology is implemented in small towns and small businesses, the benefit is readily realized and many times exponential growth results. Growth is projected by local providers at more than 50% per year. While the local economy and job outlook may be somewhat sluggish, the use of technology provides a means for Western Montana residents to connect their specialty business to far reaching corners of the globe, effectively creating a market they could never otherwise access.

In regards to infrastructure, the technology industry relies on dependable and affordable internet connections, cell phone and telephone communications. Broad width band is critical for the ability to transfer large amounts of data effectively, and in a timely manner.

Network redundancy is critical and lacking in this region. There have recently been major disruptions of wide range telecommunication services created by small isolated incidents throughout the region. Last summer a line was cut in Pablo, disrupting service to an entire network. This fall a fiber optic cable was cut in Dayton, disrupting phone and internet service throughout northwest Montana for more than a day. In January 2009, snow and ice created breaks in two separate fiber optic lines simultaneously, creating phone and internet outages from Eureka to Kalispell for several days. Many businesses were dramatically affected by all of these events, with some having to close for the duration of the repair. Adequate redundancy in service options would help to reduce this type of problem.

Since technology industry often creates a material product that must be transported, or relies upon materials received in order to do business, roads, air and transportation infrastructure is also critical to this network.

Along with roads and enhanced communication networks, schools and training programs were identified as critical infrastructure to the technology industry. Technology is certainly not the "old electronics" any more. Connecting high school and post secondary education more closely to local business needs would enhance economic development, as the industry currently indicates there is difficulty in finding skilled workers for the jobs and tasks at hand in this industry. Specifically there was verbalization of a need for Montana Tech training online to include electronics, mechanical engineering, and even how to read meters and electronic testing equipment.

Several skill sets and talents are needed. Computer operation skills and computer software skills are essential to this industry. One of the gaps reported for this industry cluster is workforce skilled in business applications. There is a great need for sales talent, specifically those who are prepared with an effective technology background. Other education needed is in marketing and business development. Education in new technologies for web developers is needed as well. This includes server-side scripting; the ability to write server-side code such as PHP, ASP, ColdFusion, Ruby, AJAX and more.

Traditional technical talent (programmers, system administrators, desktop administrators, etc.) appear to be available locally. It is more difficult to recruit sales, marketing and business development locally for this industry. There was also a reported shortage locally of good electrical and mechanical engineers. This deficit may differ by county throughout the region.

Regarding local talent and education, retaining our trained young workforce has been very difficult to do. Most indicate that they would like to stay in this area due to family ties and quality of life, if they could find good jobs. As money for education is harder to find, this may present a good opportunity for technology industries to consider assisting students with educational funding with the intent of attaining trained employees. This would require funding parameters that would connect these employers and students with anticipated employment. This could potentially help to mitigate the gap being created in this industry by the aging workforce. DRS Technologies reports that they already have an educational program available, with lock-in commitment to employment for cost recuperation.

Other gaps mentioned included better software for tracking and cost analysis, the ability to supervise more effectively off-site, and workers with acceptable workplace ethics and soft skills.

There are several factors that may help to bridge the gaps for the technology industry. One of these is the enticement of the quality of life in Western Montana which helps to draw workforce to this region. It was also reported that metals and plastic manufacturing located in this region could be a true asset to this area's technology industries, as would a generic raw stock metal supplier. Offering good incentives for company relocation was another idea for bridging the gaps here. Good jobs with good pay will really speak to the workforce, and will enhance the industry.

"Cloud Computing" is developing technology in which computing no longer takes place on the local computer, but on the Internet. Software companies would be able to write programs that are hosted, rather than installed on a local machine. This is something to watch in the future. Mobility and reduced software costs will help to drive this trend in technology. Security and privacy concerns could potentially hold it back.

Going to conferences, using HUD Zone certification to help attain Federal Contracts, asking congressmen and senators for assistance, and doing your homework were all suggested as ways to help move this industry forward. A Technology Roundtable was started in the Flathead a few months ago for Company CEO's. Also, Montana West Economic Development will be hosting a monthly Entrepreneur-to-Entrepreneur program during 2009 that is entirely centered on using technology to grow your business and make it more effective. Local technology industry people will be the speakers for these sessions.

Montana Department of Labor's Research and Analysis Bureau projects modest growth in several technology industries. Specifically included in their projections for growth include:

- Computer & information systems managers
- Computer hardware engineers
- Computer programmers
- Computer software engineers, systems software
- Computer systems analysts
- Electronics engineers
- Materials engineers
- Mechanical engineers
- Network and computer systems administrators
- Network Systems and data communication analysts
- Computer specialists
- Computer support specialists
- Electrical and electronic drafters
- Electronic and electronic repairers
- Electronic home entertainment specialists
- Audio and video equipment technicians
- Media and communication workers
- Telecommunications line installers and repairers
- Computer operators
- Computer-controlled machine operators
- Media and Communication Equipment workers (all other)
- Communications Equipment Operators
- Electrical and electronic equipment assemblers
- Electromechanical equipment assemblers

A recurring theme related to successful companies included a mission statement and company commitment of respect for their employees and care given to the professional development, working relationships and opportunities for those employees. A good example of this is Nomad Technologies. They post an outstanding mission statement on their website at <http://www.nomadtechs.com/> :

“Our vision is to be the most innovative company in the specialty vehicle marketplace.

It is our Mission to find new and better ways to integrate advanced interoperable technologies in turn-key mobile platforms for the betterment of the society in which we live. We do this by engineering and producing value driven innovative solutions that exceed our clients’ expectations and assist public and private enterprise in the planning, response and management of critical events. We work to sustain profitable growth, but we value integrity, safety, and proactive services and support above profit. We value our employees and we seek to provide a stable, rewarding and challenging work environment to cultivate collaborative teams to bring out the best in everyone at every level of Nomad Technologies.”

The story of Nomad Technologies provides a good window on technology opportunities in Western Montana. In a recent article published by Main Street Montana (by Shannon Hughes), Nomad Technologies was showcased as one of the most exciting technology companies to come to the Flathead in recent years. Four outdoors enthusiasts saw a need for better communication resources in the field for emergency management entities. Starting this business in a barn with only the four of them, their brainstorming turned into a multi-million dollar business that now employs 30 people. They have contracts throughout the region, and are working on contracts with national governmental entities as well. Their business is an interesting mix of technology and manufacturing, as they produce mobile command centers for emergency and disaster services. Their business is constantly evolving, with new applications as they reach out to serve new customers and broaden their business base.

Some of the challenges that face Nomad Technologies include staying abreast of technology changes, finding skilled staff, and competition with larger corporations. They choose to stay in Western Montana for the quality of life that they enjoy here.

S&K Technologies is another success story of a local business that has expanded dramatically to a global market. It would be fair to surmise that their success is grounded in a diverse market with global connections and a competitive edge. There is evidence that good products and good customer service helps them to retain and grow their piece of the market. They have expanded to S&K Technologies, S&K Aerospace, and S&K Global Solutions. It appears that this corporation and its sister agencies may have a good formula for success from which a regional effort could benefit.

S&K Aerospace describes themselves as “a highly successful company which provides a broad range of technology solutions to government agencies and the private sector. As a corporation of the Tribes, we are charged with helping to build the economic basis of a self-sufficient tribal community. To accomplish this important goal, we have built a company that is versatile, flexible, and responsive in meeting customer needs. We offer an experienced staff, streamlined contracting, reliable information management, rigorous quality management, and a true

commitment to customer satisfaction. They offer “Program Management/Integration; Supply Chain Management & Logistics Support for aircraft systems and subsystems (military, NASA, DOE); Environmental Services; Research & Development; Information Technology Services; Telecommunications; Technical Manual Publishing; Public Relations; Acquisition Support; and Staff Augmentation Services.”

S&K Global Solutions describes themselves as “a highly successful information technology firm which provides a broad range of technology solutions to government agencies and the private sector. As a corporation of the Tribes, we are charged with helping to build the economic basis of a self-sufficient tribal community. To accomplish this important goal, we have built a company that is versatile, flexible, and responsive in meeting customer needs. We offer and experienced staff, streamlined contracting, reliable information management, rigorous quality management, and a true commitment to customer satisfaction.” S&K Global Solutions offers Information Technology, Engineering, Telecomm, Housing & Property, Business Consulting, Administrative Support, Technical Writing, and Project Management. This corporation has offices in several states.

The mission statement of S&K Technologies says, “Economic development is central to our vision of a self-sufficient tribal community. By recognizing the preeminence of modern technology, S&K Technologies is looking to the future of our people.” The company provides services in the areas of Aerospace, IT and Materials Engineering. This includes software engineering, GPS mapping, Acquisition Support, Material Analysis and Testing, Robotics & Artificial Intelligence, Airframe Structural Teardown and Assessment and More.

From this organization’s company/employee newsletters, it is obvious that these organizations value their employees, and provide ongoing training, as well as working for an excellent work environment and company culture. This total package of diversity, employee support, customer service, and global connections is a key to the economic development occurring within these companies. The company reports that their industry is growing. As with most growth, one of their biggest challenges is likely the recruitment and retention of a trained, quality workforce.

From a much different perspective, a very small IT consulting firm in Thompson Falls indicates that they are experiencing an excellent measure of success. Their input correlated the nature of their business and charter to the work and mission of the Regional Innovation Grant. In their words:

“We are using computer and communications tools to stimulate the economy in our county which has the highest unemployment in the state. We have over 65 web sites in a county of just over 10,000 and do eBay sales, computer training, marketing materials and consulting to small business people at rates that the economy can bear. We have been in business since 2005 and have a Main Street presence. The growth of our business has been extraordinary. The demographic is older people

who move here with their businesses or want to develop a cottage industry. The trades people recognize they have to expand and many of them have specifically asked us to market to Canada as they broaden their reach. We currently have a backlog of work and will continue to for some time. We also repair computers and are the location for the local chamber of commerce providing wifi service for travelers and locals. EBay sales have been particularly brisk during the downturn.

We continue to see an explosion of our business and do not seem to find an end to the work activities. We process photos through a source in Seattle, fax documents, and manage the Chamber of Commerce website. We are becoming involved in the local community development group. We project growth to continue at a 50%+ rate each year.

The local telecommunications provides fast DSL service and we continue to do installations and make recommendations for computer solutions. DSL is available in 97% of homes in this county. We buy refurbished computers at reasonable prices, setting them up with simple to use tools and training. We have taught people to use eBay and to build stores to sell crafts and used items.

To work in this industry, a strong computer software background is recommended. We are going to offer free classes to interested individuals in search of talent in the computer. We feel that the public schools teach computer utilization but the technical business practical applications are missing.

We will work to provide education for those motivated to learn and apply the use of computer tools to build businesses. Where we are the service provider we will educate our community on marketing, sales, business development, inventory control, profitability analysis, cost control and other tools to improve business acumen.

In one more business highlight, we look at Superior Satellite in Columbia Falls. This business considers themselves more of a manufacturing business, rather than technology. However, they supply antennae and feed systems to tech companies like Avail Media, which provides the “movie-on-demand” systems to hotels, etc. This company is small and does not experience much employee turnover. Their employees have been there 10, 12, and 15 years. They indicated that they don’t have high infrastructure needs or need for training. However, they are currently learning more about exporting, as they now serve markets around the world.

An excerpt from their website at www.superiorsatelliteusa.com: “In 1983, with input from Hughes Communications engineer Norm Weinhouse; Superior Satellite Engineers developed the multi-beam feed system to provide access to multiple satellites from a single antenna. We are not only the pioneers of this technology, but by far the industry leaders with delivery of over 20,000 systems world wide. Our years of experience have familiarized us with the performance characteristics of virtually every commercial satellite antenna. This assures that our multi-beam feed

system and recommended alignments will provide adequate satellite reception. We have a complete testing facility at our plant in Columbia Falls, Montana. With a wide range of antenna sizes available, we can test your customer's particular configuration and provide them with accurate and comprehensive test data.”

As with other companies researched for this report, Superior Satellite makes a point on their website of highlighting quality of life in Montana. Jore Manufacturing does the same with an entire gallery of western Montana photos. It is evident that the technology industry is something that people can create by choice in Western Montana, and oftentimes do so in order to live in this beautiful and recreation-rich area. It would follow that preserving the quality of life here should be a critical component in economic development ventures. The essence of the “triple bottom line”—respecting and working to enhance the quality of the community, the environment and the economy—appears to be readily embraced by the technology industry that already exists in this region. Continuing to support those values would likely help to bring more technology industries to Western Montana.